PATENT CLAIMS

1. A device for measuring the distance (d) to far-off
    and close objects (8) by which laser beams (1)
    modulated and emitted by the device are reflected,
    comprising
    - a common objective (2) for emitting the laser
      beams (1) and for collecting rays which
      comprise laser beams (3) reflected by the
      objects and background rays (28),
    - means (12, 36, 38, 39, 40) for selecting rays
      of a cohesive cross-sectional region (34, 37)
      of a bundle of collected rays which has a first
      (5) and at least one second section (6), laser
      beams (3) reflected by a far-off object being
      coordinated with the first section (5) and
      laser beams (3) reflected by a close object
      being coordinated with the at least one second
      section (6) and only a fraction of the
      collected laser beams (1) reflected by the
      close object being selected via the second
      section (6), and
    - a receiver (7) for converting selected rays
      into a single electrical signal, by means of
      which the distance (d) can be determined with
      the aid of the propagation velocity of optical
      rays,
    wherein the means (12, 36, 38, 39, 40) are formed
    in such a way that the at least one second section
    (6) has at least the dimension of the first
    section (5).

2. The device as claimed in claim 1 for measuring the
    distance (d) to an object (8) which reflects with
    orientation, wherein the emitted laser beams (1)
    are in the form of a decollimated bundle of rays.

3. The device as claimed in claim 1 or 2, wherein the means (12, 36, 38, 39, 40) are formed in such a way that the selected cross-sectional region (34) has at least two second sections (6) between which a single first section (5) is arranged, and wherein optionally the selected cross-sectional region (34) is symmetrically formed.

4. The device for measuring the distance (d) to far-off and close objects (8) which reflect with orientation and by which the laser beams (1) which are modulated and emitted by the device and are in the form of a decollimated bundle of rays are reflected, comprising
    - an objective (2) for collecting rays which comprise laser beams (3) reflected by the objects and background rays (28),
    - a further objective (41) for emitting the laser beams (1),
    - means (40) for selecting rays of a cohesive cross-sectional region of a bundle of collected rays which has a first (5) and a second section (6), laser beams (3) reflected by a far-off object being coordinated with the first section (5) and laser beams reflected by a close object being coordinated with the second section (6) and only a fraction of the collected laser beams (1) reflected by the close object being selected via the at least one second section (6), and
    - a receiver (7) for converting selected rays into a single electrical signal by means of which the distance (d) can be determined with the aid of the propagation velocity of optical rays,
    wherein the means (40) are formed in such a way

that the second section (6) has at least the
dimension of the first section (5).

5. The device as claimed in any of claims 1 to 4,
wherein the means (12, 38, 39, 40) are formed in
such a way that the second section (6) has a
larger dimension than the first section (5).

6. Device as claimed in claim 5, wherein the means
(12, 38, 39, 40) are formed in such a way that the
selected cross-sectional region (34) tapers
starting from the second section (6) toward the
first section (5) in such a way that, during
measurement to the object (8) which reflects with
orientation, at different distances (d) from close
to far-off, the respective differences between the
intensity of selected rays are reduced.

7. The device as claimed in any of claims 1 to 6 for
measuring to an object (8) which reflects with
orientation and to an object which reflects with
scattering, wherein, for measurement to the object
which reflects with scattering, the emitted laser
beams are in the form of a collimated bundle of
rays.

8. The device as claimed in claim 7, wherein the
means (12, 36, 38, 39, 40) are formed in such a
way that the selected cross-sectional region (34)
tapers starting from the second section (6) toward
the first section (5) in such a way that, during
measurement to the object (8) which reflects with
orientation and to the object which reflects with
scattering, in each case at different distances
(d) from close to far-off, the respective
differences between the intensity of selected rays
are reduced.

9. The device as claimed in any of claims 1 to 8, wherein at least one multimode optical fiber (10) is provided for the transmission of selected rays.

10. The device as claimed in claim 9, wherein the means (39) for selection are in the form of an endpiece of a multimode optical fiber (10) which endpiece has been squeezed together in an elongated manner.

11. The device as claimed in any of claims 1 to 9, wherein the means (12) for selection are in the form of a diaphragm, for example in the form of a slit diaphragm or in the form of a crossed-slit diaphragm, optionally in combination with the entry area of the multimode optical fiber (10).

12. The device as claimed in any of claims 1 to 9, wherein the means for selection are in the form of a reflective, refractive or diffractive optical element, for example in the form of a cylindrical lens (36), free-form lens or optionally metallized light-collecting funnel, optionally arranged before the entry area of the multimode optical fiber (10).

13. The device as claimed in any of claims 1 to 9, wherein the means for selection are in the form of a detector (40) having an elongated, active detection area (42).

14. The device as claimed in any of claims 1 to 13, wherein means (12, 36, 38, 39, 40) for selection are arranged in the vicinity of the focal plane (20) of the objective (2) for collecting rays.

15. The device as claimed in any of claims 1 to 14, wherein an eyepiece (23) is provided, the eyepiece (23) and the objective (41) forming a telescope for sighting the objects (8).